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EXAMINER	
NGUYEN, KEVIN M	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/327,282	JEONG ET AL.	
	Examiner	Art Unit	
	Kevin M. Nguyen	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-6 and 13-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-6 and 13-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Request for Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/03/2006 has been entered. An action on the RCE follows:

Response to applicant's amendment/argument filed on 03/03/2006. Claims 23, 25, 27, 29 and 31-35 are amended, and claims 1, 2 and 7-12 are cancelled. Thus, claims 3-6 and 13-35 are pending. Applicant's arguments, see pages 11-12, with respect to the amended claims 23, 25, 27, 29 and 31-35 have been fully considered and are persuasive. The rejection of claims 3-6 and 13-35 has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ohwada et al (US 4,750,813).

2. The amendment to the specification filed on 08/09/2004 is entered. The drawings were received on 08/09/2004. These drawings are acknowledged.

Claim Objections

3. Claims 3 and 16 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 4 and 19 respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a

slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3, 4, 6, 16-32, 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohwada et al (US 4,750813) hereinafter Ohwada in view of Kumagawa et al (US 6,232,944) hereinafter Kumagawa.

6. As to claims 3, 4, 16 and 19, Ohwada teaches a method for driving a matrix type liquid crystal panel provided with a plurality of thin film transistor coupled to scanning wires and signal wires, and a plurality of liquid crystal cells, at intersecting points of the scanning wires and the signal wires (see Fig. 1, col. 2, lines 41-65), the method comprising steps of:

applying a scanning signal to the scanning wire (applying a scanning signal by a scanning side driving circuit 4, see Fig. 4, col. 3, line 50 through col. 4, line 51).

Accordingly, Ohwada teaches all of the claimed limitation except for supplying data signals having a width enlarged in accordance with an increased distance from a source of the scanning signal to the signal wires wherein an accurate data signal is

applied to each of the plurality of liquid crystal cells such that a picture displayed on the liquid crystal panel is not distorted.

However, Kumagawa teaches a LCD which includes supplying data signals (supplying data signals by the signal driving circuit 306, fig. 27, col. 35, line 38) having a width enlarged in accordance with an increased distance from a source of the scanning signal to the signal wires (the width of the compensating pulse control signal is varied for each drive IC, see col. 38, lines 66-67; the pulse width increases in the order of a. nearest, b. middle, and c. farthest, see col. 38, lines 52-53; a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines) wherein an accurate data signal is applied to each of the plurality of liquid crystal cells such that a picture displayed on the liquid crystal panel is not distorted (the changing condition of the data signal controls in a proper period independently, see col. 17, lines 31-34, the vertical line crosstalk due to the distortion of the scanning voltage can be reduced, see col. 8, lines 31-33).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the IC(s) for applying the driving signals with varying periods of time to electrodes as taught by Kumagawa for the intended use of the TFT-LCD of Ohwada, because this would improve a quality of the image being displayed (see Kumagawa's abstract), while fabricating driver circuitry at lost cost and saving power consumption (see Kumagawa, col. 3, lines 54-59).

7. As to claims 6 and 22, claims 6 and 22 share similar limitations to those included in claim 3 and therefore the rationale of rejection will be the same. Claims 6 and 22

have the added limitation "applying a scanning signal to the scanning wire having a width varied in accordance with a position of the signal wire relative to the scanning wire, and supplying data signals having a width enlarged in accordance with a distance from a source of the scanning signal to the signal wires."

However, Kumagawa teaches a LCD which includes applying a scanning signal to the scanning wire (applying a scanning signal by the scanning drive circuit 305, fig. 27, col. 35, line 35) having a width varied in accordance with a position of the signal wire relative to the scanning wire (this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines, see col. 41, lines 25-28), and supplying data signals (supplying data signals by the signal driving circuit 306, fig. 27, col. 35, line 38) having a width enlarged in accordance with an distance from a source of the scanning signal to the signal wires (the width of the compensating pulse control signal is varied for each drive IC, see col. 38, lines 66-67; the pulse width increases in the order of a. nearest, b. middle, and c. farthest, see col. 38, lines 52-53; a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the IC(s) for applying driving signals with varying periods of time to electrodes as taught by Kumagawa for the intended use of the TFT-LCD of Ohwada, because this would improve a quality of the image being displayed

(see Kumagawa's abstract), while fabricating driver circuitry at lost cost and saving power consumption (see Kumagawa, col. 3, lines 54-59).

As to claims 17 and 20, Kumagawa teaches the apparatus as set forth in claims 16, 19, wherein the signal side driving means includes a plurality of signal wire driving cells for driving a signal wires by a certain area and supplying the data signals to the divided areas (a LCD was made for 800x600 dots color display using the above explained IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60).

As to claims 18 and 21, Kumagawa teaches the apparatus as set forth in claims 16, 19, wherein the width control means applies an output enable signal to the scanning side driving means (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59, the CR circuit formed by the resistance of the scanning electrode and the capacitance of the pixel, see col. 39, lines 10-11), the output enable signal having a width of a disable period enlarged in accordance with proceeding from the start point to the end point of the signal wire (this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28).

8. As to claim 27, claim 27 shares similar limitations to those included in claim 3 and therefore the rationale of rejection will be the same. Claim 27 has the added limitation "applying a scanning line signal from a scanning driver integrated circuit (IC) to one of the scanning lines of the LCD connected at one end to the scanning driver IC,

and applying data line signals to each of the data lines, a first width of a first one of the data line signals applied to a first one of the data lines located a first distance from the scanning driver IC being greater than a second width of a second one of the data line signals applied to a second one of the data lines located a second distance from the scanning driver IC, wherein the first distance is greater than the second distance."

However, Kumagawa teaches a LCD which includes applying a scanning line signal from a scanning driver integrated circuit (IC) to one of the scanning lines of the LCD connected at one end to the scanning driver IC (the scanning drive circuit 305, fig. 27, col. 35, line 35; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60), and applying data line signals to each of the data lines, a first width of a first one of the data line signals applied to a first one of the data lines located a first distance from the scanning driver IC being greater than a second width of a second one of the data line signals applied to a second one of the data lines located a second distance from the scanning driver IC, wherein the first distance is greater than the second distance (the width of the compensating pulse control signal is varied for each drive IC disposed in the signal drive circuit so that the width of the compensating pulse can be varied easily, see col. 38, line 66 to col. 39 line 1; a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines; according to the effect of the offset adder circuit, the pulse width increase in the order of a. nearest , b. middle and c. farthest, which mean the distance from the power source, see fig. 22, col. 38, lines 51-54), wherein an accurate data signal is applied to each of the plurality of liquid

crystal cells such that a picture displayed on the liquid crystal panel is not distorted (the changing condition of the data signal controls in a proper period independently, see col. 17, lines 31-34, the vertical line crosstalk due to the distortion of the scanning voltage can be reduced, see col. 8, lines 31-33).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the IC(s) for applying driving signals with varying periods of time to electrodes as taught by Kumagawa for the intended use of the TFT-LCD of Ohwada, because this would improve a quality of the image being displayed (see Kumagawa's abstract), while suppressing increasing of the area for he peripheral portion of the LCD, and fabricating driver circuitry at lost cost and saving power consumption (see Kumagawa, col. 3, lines 54-59).

9. As to claim 23, claim 23 shares similar limitations to those included in claim 3 and therefore the rationale of rejection will be the same. Claim 23 has the added limitation "a plurality of scanning driver integrated circuits connected to the scanning lines for applying scanning signals thereto, and a plurality of data drive integrated circuits connected to the data lines for applying data thereto.

However, Kumagawa teaches a LCD which includes a plurality of scanning driver integrated circuits connected to the scanning lines for applying scanning signals thereto (the scanning drive circuit 305, fig. 27, col. 35, line 35; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60), and a plurality of data drive integrated circuits connected to the data lines for applying data thereto (the signal driving circuit 306, fig. 27, col. 35, line 38; the IC as a signal drive IC and a normal drive

IC as a scanning drive IC, see col. 33, lines 58-60), and a controller for varying time periods during which the scanning signals are applied by the scanning driver integrated circuits to the scanning lines in accordance with the scanning lines' respective positions relative to the data line source (this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28; control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59; a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines).

Accordingly, Kumagawa teaches all of claimed limitation except for a plurality of scanning driver integrated circuits and a plurality of data driver integrated circuits. However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal drive IC and the scanning drive IC as taught by Kumagawa to make the plurality of scanning driver integrated circuits and the plurality of data driver integrated circuits because the mere fact that a given structure is the integral circuit does not preclude its consisting of various element in making separable of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward patentable subject matter as

desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the IC(s) for applying driving signals with varying periods of time to electrodes as taught by Kumagawa for the intended use of the TFT-LCD of Ohwada, because this would improve a quality of the image being displayed (see Kumagawa's abstract), while suppressing increasing of the area for he peripheral portion of the LCD, and fabricating driver circuitry at lost cost and saving power consumption (see Kumagawa, col. 3, lines 54-59).

As to claim 24, Kumagawa teaches the driving system of claim 23, wherein the width controller supplies output enable signal to the data driver integrated circuits to control the time periods during which the data signals are applied by the data driver integrated circuits to the data lines (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60, the signal driver circuit 306 for varying the width of the compensating pulse added to each signal electrode, col. 38, lines 64-65).

10. As to claim 25, Claim 25 shares similar limitations to those included in claim 3 and therefore the rationale of rejection will be the same. Claim 25 has the added limitation "a plurality of scanning driver integrated circuits connected to the scanning lines for applying scanning signals thereto, a plurality of data drive integrated circuits connected to the data lines for applying data thereto, a controller for varying time

periods during which the scanning signal are applied by the scanning driver integrated circuits to the scanning lines in accordance with the scanning lines' respective positions relative to the data line source."

However, Kumagawa teaches a LCD which includes a plurality of scanning driver integrated circuits connected to the scanning lines for applying scanning signals thereto (the scanning drive circuit 305, fig. 27, col. 35, line 35; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60), a plurality of data drive integrated circuits connected to the data lines for applying data thereto (the signal driving circuit 306, fig. 27, col. 35, line 38; a STN the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60), and a controller for varying time periods during which the scanning signal are applied by the scanning driver integrated circuits to the scanning lines in accordance with the scanning lines' respective positions relative to the data line source (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60; this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28).

Accordingly, Kumagawa teaches all of the claimed limitation, except for a plurality of scanning driver integrated circuits and a plurality of data driver integrated circuits. However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC

as a scanning drive IC, see col. 33, lines 58-60. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal drive IC and the scanning drive IC as taught by Kumagawa to make the plurality of scanning driver integrated circuits and the plurality of data driver integrated circuits because the mere fact that a given structure is the integral circuit does not preclude its consisting of various element in making separable or plural of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward patentable subject matter as desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the IC(s) for applying driving signals with varying periods of time to electrodes as taught by Kumagawa for the intended use of the TFT-LCD of Ohwada, because this would improve a quality of the image being displayed (see Kumagawa's abstract), while suppressing increasing of the area for he peripheral portion of the LCD, and fabricating driver circuitry at lost cost and saving power consumption (see Kumagawa, col. 3, lines 54-59).

As to claim 26, Kumagawa teaches the driving system of claim 25, wherein the controller supplies output enable signals to the scanning driver integrated circuits to control the widths of the time periods during which the scanning signals are applied by the scanning driver integrated circuits to the scanning lines (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL

using an external clock, see figs. 27, col. 36, lines 57-59; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60; this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28).

As to claim 28, Kumagawa teaches the method of claim 27, wherein applying the data signals to each of the data lines, comprises: supplying a data signal to a plurality of data driver integrated circuits connected to the data lines (the signal driving circuit 306, fig. 27, col. 35, line 38; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60); supplying output enable signals to the data driver integrated circuits, wherein a width of a disable period of a first one of the output enable signals applied to a first one of the data driver integrated circuits connected to the first of the data lines is less than a width of a disable period of a second one of the output enable signals applied to a second one of the data driver integrated circuits connected to the second one of the data lines (the width of the compensating pulse control signal is varied for each drive IC disposed in the signal drive circuit so that the width of the compensating pulse can be varied easily, see col. 38, line 66 to col. 39 line 1; a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines; according to the effect of the offset adder circuit, the pulse width increase in the order of a. nearest , b. middle and c. farthest, which mean the distance from the power source, see fig. 22, col. 38, lines 51-54).

Accordingly, Kumagawa teaches all of the claimed limitation except for a plurality of data driver integrated circuits. However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal drive IC as taught by Kumagawa to make the plurality of data driver integrated circuits because the mere fact that a given structure is the integral circuit does not preclude its consisting of various element in making separable or plural of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward patentable subject matter as desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

11. As to claim 29, Claim 29 shares similar limitations to those included in claim 3 and therefore the rationale of rejection will be the same. Claim 29 has the added limitation "applying data line signals from a plurality of data driver integrated circuits (ICs) to the data lines of the LCD, each data line being connected at one end to one of the data driver ICs, applying scanning line signals to each of the scanning lines, a first width of a first one of the scanning line signals applied to a first one of the scanning lines located a first distance from the data driver ICs being different from a second width of a second one of the scanning line signals applied to a second one of the scanning lines located a second distance from the data driver ICs, wherein the first distance is greater than the second distance."

However, Kumagawa teaches a LCD which includes applying data line signals from a plurality of data driver integrated circuits (ICs) to the data lines of the LCD, each data line being connected at one end to one of the data driver ICs (the signal driving circuit 306, fig. 27, col. 35, line 38; a STN the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60), and applying scanning line signals to each of the scanning lines, a first width of a first one of the scanning line signals applied to a first one of the scanning lines located a first distance from the data driver ICs being different from a second width of a second one of the scanning line signals applied to a second one of the scanning lines located a second distance from the data driver ICs, wherein the first distance is greater than the second distance (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60; this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28).

Accordingly, Kumagawa teaches all of the claimed limitation except for a plurality of data driver integrated circuits. However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal drive IC as taught by Kumagawa to make the plurality of data driver integrated circuits because the mere fact that a given structure is the integral

circuit does not preclude its consisting of various element in making separable or plural of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward patentable subject matter as desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the IC(s) for applying driving signals with varying periods of time to electrodes as taught by Kumagawa for the intended use of the TFT-LCD of Ohwada, because this would improve a quality of the image being displayed (see Kumagawa's abstract), while suppressing increasing of the area for he peripheral portion of the LCD, and fabricating driver circuitry at lost cost and saving power consumption (see Kumagawa, col. 3, lines 54-59).

As to claim 30, Kumagawa teach the method of claim 29, wherein applying the scanning line signals to each of the scanning lines comprises supplying output enable signals to the scanning driver integrated circuits (the scanning drive circuit 305, fig. 27, col. 35, line 35; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60);

wherein a width of a disable period of a first one of the output enable signals applied to a first one of the scanning driver integrated circuits connected to the first of the scanning lines is greater than a width of a disable period of a second one of the output enable signals applied to a second one of the scanning driver integrated circuits connected to the second one of the scanning lines (control circuit 307 is capable of

adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60; this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28).

12. As to claim 31, Claim 31 shares similar limitations to those included in claim 3 and therefore the rationale of rejection will be the same. Claim 31 has the added limitation "controlling scanning signals supplied to the scanning lines, controlling data signals supplied to the data lines, and wherein the data signals have widths enlarged depending on an increased distance of the data lines from the scanning signal sources."

However Kumagawa teaches a LCD which includes controlling scanning signals supplied to the scanning lines (the scanning drive circuit 305, fig. 27, col. 35, line 35), controlling data signals supplied to the data lines (the signal driving circuit 306, fig. 27, col. 35, line 38), and wherein the data signals have widths enlarged depending on an increased distance of the data lines from the scanning signal sources (the width of the compensating pulse control signal is varied for each drive IC disposed in the signal drive circuit so that the width of the compensating pulse can be varied easily, see col. 38, line 66 to col. 39 line 1; a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines; according to the effect of the offset adder circuit, the pulse width increase in the order of a. nearest , b. middle and c. farthest, which mean the distance from the

power source, see fig. 22, col. 38, lines 51-54) wherein an accurate data signal is applied to each of the plurality of liquid crystal cells such that a picture displayed on the liquid crystal panel is not distorted (the changing condition of the data signal controls in a proper period independently, see col. 17, lines 31-34, the vertical line crosstalk due to the distortion of the scanning voltage can be reduced, see col. 8, lines 31-33).

Accordingly, Kumagawa teaches all of the claimed limitation except for a plurality a plurality of data sources and a plurality of scanning signal sources. However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal drive IC and the scanning drive IC as taught by Kumagawa to make the plurality of data sources and the plurality of scanning signal sources because the mere fact that a given structure is the integral circuit does not preclude its consisting of various element in making separable or plural of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward patentable subject matter as desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the IC(s) for applying driving signals with varying periods of time to electrodes as taught by Kumagawa for the intended use of the TFT-LCD of Ohwada, because this would improve a quality of the image being displayed (see Kumagawa's abstract), while suppressing increasing of the area for he peripheral

portion of the LCD, and fabricating driver circuitry at lost cost and saving power consumption (see Kumagawa, col. 3, lines 54-59).

13. As to claim 34, Ohwada teaches a driving system for driving a liquid crystal display device having a plurality of scanning lines, a plurality of data lines, a plurality of data signal sources and a plurality of scanning signal sources (see fig. 1, col. 2, lines 41-65), comprising:

a data driver (a signal side driving circuit 5, fig. 1);

a gate driver (a scanning side driving circuit 4, fig. 1).

Accordingly, Ohwada teaches all of the claimed limitation, except for a plurality of width expanders for controlling widths of data signals provided to the data lines in accordance with a distance from the data lines to the scanning signal sources, and wherein a scanning signal has a varying width depending on the distance of the scanning lines from the data signal sources.

However, Kumagawa teaches a LCD which includes a plurality of width expanders for controlling widths of data signals provided to the data lines in accordance with a distance from the data lines to the scanning signal sources (the width of the compensating pulse control signal is varied for each drive IC disposed in the signal drive circuit so that the width of the compensating pulse can be varied easily, see col. 38, line 66 to col. 39 line 1; a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines; according to the effect of the offset adder circuit, the pulse width increase in the order of a. nearest , b. middle and c. farthest, which mean the distance from the

power source, see fig. 22, col. 38, lines 51-54), and wherein a scanning signal has a varying width depending on the distance of the scanning lines from the data signal sources (this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28, the scanning electrode depends on the distance from the scan drive circuit, so that distortion is larger at the farthest portion and smaller at the nearest portion, col. 40, line 66 through col. 41, line 2).

Accordingly, Kumagawa teaches all of the claimed limitation except for a plurality a plurality of data drivers and a plurality of gate drivers. However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal drive IC and the scanning drive IC as taught by Kumagawa to make the plurality of data drivers and the plurality of gate drivers because the mere fact that a given structure is the integral circuit does not preclude its consisting of various element in making separable or plural of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward patentable subject matter as desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the IC(s) for applying driving signals with varying periods of time to electrodes as taught by Kumagawa for the intended use of the TFT-

LCD of Ohwada, because this would improve a quality of the image being displayed (see Kumagawa's abstract), while suppressing increasing of the area for he peripheral portion of the LCD, and fabricating driver circuitry at lost cost and saving power consumption (see Kumagawa, col. 3, lines 54-59).

14. As to claim 35, Claim 35 shares similar limitations to those included in claim 34 and therefore the rationale of rejection will be the same. Claim 35 has the added limitation "a plurality of width expanders for controlling widths of a scanning signal provided to the scanning lines in accordance with a position of the scanning lines relative to the data signal sources, and wherein a plurality of data signals have varying widths depending on the distance of the data lines from the scanning signal sources."

However, Kumagawa teaches a LCD which includes a plurality of width expanders for controlling widths of a scanning signal provided to the scanning lines in accordance with a position of the scanning lines relative to the data signal sources (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59; this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28, the scanning electrode depends on the distance from the scan drive circuit, so that distortion is larger at the farthest portion and smaller at the nearest portion, col. 40, line 66 through col. 41, line 2), and wherein a plurality of data signals have varying widths depending on the distance of the data lines from the scanning signal sources (the width of the compensating pulse control signal is varied for

each drive IC disposed in the signal drive circuit so that the width of the compensating pulse can be varied easily, see col. 38, line 66 to col. 39 line 1; a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines; according to the effect of the offset adder circuit, the pulse width increase in the order of a. nearest , b. middle and c. farthest, which mean the distance from the power source, see fig. 22, col. 38, lines 51-54).

Accordingly, Kumagawa teaches all of the claimed limitation except for a plurality a plurality of data drivers and a plurality of gate drivers. However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal drive IC and the scanning drive IC as taught by Kumagawa to make the plurality of data drivers and the plurality of gate drivers because the mere fact that a given structure is the integral circuit does not preclude its consisting of various element in making separable or plural of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward patentable subject matter as desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

15. Claims 5, 13-15 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohwada in view of Inada, and further in view of Kumagawa.

16. As to claim 5, Ohwada teaches a method for driving a matrix type liquid crystal panel provided with a plurality of thin film transistor coupled to scanning wires and signal wires, and a plurality of liquid crystal cells, at intersecting points of the scanning wires and the signal wires (see Fig. 1, col. 2, lines 41-65), the method comprising steps of:

applying a scanning signal to the scanning wire (applying a scanning signal by a scanning side driving circuit 4, see Fig. 4, col. 3, line 50 through col. 4, line 51).

Accordingly, Ohwada teaches all of the claimed limitation, except for supplying a scanning signal having a width reduced.

However, Inada teaches supplying a scanning signal having a width reduced in accordance with an increased distance from a source of the signal wire to the scanning wire (the pulse width applied to the electrodes is gradually decreased as scanning of the electrodes sequentially occurs, see abstract, lines 11-13, col. 7, lines 56-63, and col. 8, lines 19-24).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the IC(s) for applying driving signals with varying periods of time to electrodes as taught by Inada for the intended use of the TFT-LCD of Ohwada, because this would improve a quality of the image being displayed (see Inada, col. 8, lines 17-18), while fabricating a driver circuitry at lost cost (see Inada, col. 5, lines 1-4).

Accordingly, the combination of Ohwada and Inada teaches all of the claimed limitation, except for supplying a scanning signal having a width varied in accordance with an increase distance from a source of the signal wire to the scanning wire.

However, Kumagawa teaches a LCD panel comprising supplying a scanning signal having a width varied in accordance with an increase distance from a source of the signal wire to the scanning wire (a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the IC(s) for applying driving signals with varying periods of time to electrodes as taught by Kumagawa for the intended use of the of Ohwada and Inada, because this would improve a quality of the image being displayed (see Kumagawa's abstract), while suppressing increasing of the area for he peripheral portion of the LCD, and fabricating driver circuitry at lost cost and saving power consumption (see Kumagawa, col. 3, lines 54-59).

17. As to claim 13, claim 13 shares similar limitations to those included in claim 5 and therefore the rationale of rejection will be the same. Claim 13 has the added limitation "a plurality a plurality of data sources and a plurality of scanning signal sources."

However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal

drive IC and the scanning drive IC as taught by Kumagawa to make the plurality of data sources and the plurality of scanning signal sources because the mere fact that a given structure is the integral circuit does not preclude its consisting of various element in making separable or plural of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward patentable subject matter as desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

As to claim 14, Kumagawa teaches the apparatus as set forth in claim 13, wherein the signal side driving means includes a plurality of signal wire driving cells for driving a signal wires by a certain area and supplying the data signals to the divided areas (a STN type LCD was made for 800x600 dots color display using the above explained IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60).

As to claim 15, Kumagawa teaches the apparatus as set forth in claim 13, wherein the width control means applies an output enable signal to the scanning side driving means (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59, the CR circuit formed by the resistance of the scanning electrode and the capacitance of the pixel, see col. 39, lines 10-11), the output enable signal having a width of a disable period enlarged in accordance with proceeding from the start point to the end point of the signal wire (this embodiment varies the width of the compensating

pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28).

18. As to claim 33, claim 33 shares the same limitations as those of claim 13 and therefore the rationale for rejection will be the same.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN M. NGUYEN whose telephone number is 571-272-7697. The examiner can normally be reached on MON-THU from 8:00-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, a supervisor RICHARD A. HJERPE can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8000.

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Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197

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